DOCUMENT RESUME

ED 311 106 UD 026 988

TITLE State Bilingual and ECIA Chapter 1 Migrant Product Evaluation Report. 1988-89.
INSTITUTION Saginaw Public Schools, Mich. Dept. of Evaluation Services.
PUB DATE Jul 89
NOTE 42p.; For 1987-1988 report, see ED 298 233; for 1988-89 process evaluation report, see ED 308 036.
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Achievement Tests; *Bilingual Education; Compensatory Education; *Educationally Disadvantaged; Elementary Secondary Education; *Migrant Programs; *Outcomes of Education; Scores; Summative Evaluation; *Supplementary Education; Urban Schools
IDENTIFIERS *Education Consolidation Improvement Act Chapter 1; *Michigan (Saginaw)

ABSTRACT

This document presents product evaluations of the 1988-89 Saginaw (Michigan) State Bilingual Program and the Migrant Program, funded under Chapter 1 of the Education Consolidation and Improvement Act. The evaluations revealed a decline in reading performance, and an increase in mathematics performance over the previous year for participants in the State Bilingual Program. Participants in the Migrant Program demonstrated an increase in performance in both reading and mathematics. The State Bilingual Program served 900 predominately Hispanic students; the Migrant Program served 449 students. Students in grades 2-12 were pre- and post-tested using the California Achievement Test (CAT) Form E on a spring to spring basis. The locally adopted performance standard was that grade level post-test mean percentile scores would show improvement over pre-test scores. Recommendations are suggested based on the results of this product evaluation and a separately conducted process evaluation. Statistical data are included on 13 tables. The appendices are listed under the following headings: (1) 1988-89 Count of State Bilingual and Migrant Program Participants; (2) Identification and Eligibility Procedures for State Bilingual and Migrant Students and Funding Summary Flow Chart; and (3) Mean Percentile Gain/Loss in Reading and Mathematics by Building and Grade for 1-12 State Bilingual and Migrant Based on Pre- to Post-Testing on CAT, 1988-89 (Spring to Spring). (FMW)

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EVALUATION REPORT

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STATE BILINGUAL AND ECIA
CHAPTER 1 MIGRANT PRODUCT
EVALUATION REPORT

1988-89

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STATE BILINGUAL AND ECIA CHAPTER 1 MIGRANT PRODUCT EVALUATION REPORT

1988-89

An Approved Report of the
DIVISION OF ADMINISTRATION AND PERSONNEL
Department of Evaluation, Testing, and Research

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July, 1989

TABLE OF CONTENTS

	Page
PROGRAM DESCRIPTION	1
State Bilingual Program	1
Migrant Program	1
PRODUCT EVALUATION RESULTS	4
STATE BILINGUAL	4
Reading	4
Mathematics	5
MIGRANT	6
Reading	6
Mathematics	7
STATE BILINGUAL AND MIGRANT PROGRAMS	8
SUMMARY	10
RECOMMENDATIONS	11
APPENDICES	13
APPENDIX A: 1988-89 Count of State Bilingual and Migrant Program Participants	14
APPENDIX B: Identification And Eligibility Procedures For State Bilingual And Migrant Students and Funding Summary Flow Chart	18
APPENDIX C: Mean Percentile Gain/Loss In Reading And Mathematics By Building And Grade For 1-12 State Bilingual and Migrant Based On Pre- to Post-Testing On CAT, 1988-89 (Spring To Spring)	22

LIST OF TABLES

Table		Page
1	Attainment of the Performance Standard in Reading in Terms of Percentile Scores for State Bilingual Program Participants Tested Spring to Spring, Grades 1-12, 1988-89	4
2	Attainment of the Performance Standard in Mathematics in Terms of Percentile Scores for State Bilingual Program Participants Tested Spring to Spring, Grades 1-12, 1988-89	5
3	Attainment of the Performance Standard in Reading in Terms of Percentile Scores for Migrant Program Participants Tested Spring to Spring, Grades 1-12, 1988-89	6
4	Attainment of the Performance Standard in Mathematics in Terms of Percentile Scores for Migrant Program Participants Tested Spring to Spring, Grades 1-12, 1988-89	7
5	Attainment Status for Reading and Mathematics by Program by Grade, 1988-89	9
C.1	Mean Percentile Gain/Loss in Reading by Building and Grade for 1-6 State Bilingual, Based on Pre- to Post-Testing on CAT, 1988-89 (Spring to Spring)	22
C.2	Mean Percentile Gain/Loss in Reading by Building and Grade for 7-12 State Bilingual, Based on Pre- to Post-Testing on CAT, 1988-89 (Spring to Spring)	23
C.3	Mean Percentile Gain/Loss in Mathematics by Building and Grade for 1-6 State Bilingual, Based on Pre- to Post-Testing on CAT, 1988-89 (Spring to Spring)	24
C.4	Mean Percentile Gain/Loss in Mathematics by Building and Grade for 7-12 State Bilingual, Based on Pre- to Post-Testing on CAT, 1988-89 (Spring to Spring)	25
C.5	Mean Percentile Gain/Loss in Reading by Building and Grade for 1-6 Migrant, Based on Pre- to Post-Testing on CAT, 1988-89 (Spring to Spring)	26
C.6	Mean Percentile Gain/Loss in Reading by Building and Grade for 7-12 Migrant, Based on Pre- to Post-Testing on CAT, 1988-89 (Spring to Spring)	27
C.7	Mean Percentile Gain/Loss in Mathematics by Building and Grade for 1-6 Migrant, Based on Pre- to Post-Testing on CAT, 1988-89 (Spring to Spring)	28
C.8	Mean Percentile Gain/Loss in Mathematics by Building and Grade for 7-12 Migrant, Based on Pre- to Post-Testing on CAT, 1988-89 (Spring to Spring)	29

PROGRAM DESCRIPTION

The Section 41, State Bilingual Education program and the E.C.I.A. Chapter 1, Migrant Education program are programs designed to meet the special educational needs of State Bilingual and Migrant students in the School District of the City of Saginaw. These programs were operated by the school district during the 1988-89 school year.

The State Bilingual and Migrant programs operated at 21 elementaries, five junior highs, and both high schools. (See Appendix A for number of students participating by building as of February 28, 1989 tracking). Instruction was provided primarily on a pull-out basis, with each student receiving approximately one hour of supplemental instruction per week.

STATE BILINGUAL PROGRAM

The State Bilingual program served 900 students during the 1988-89 school year. The vast majority of the students were Hispanic, with a small number of Laotian students completing the program population.

Instruction was provided to K-6 students primarily in the areas of reading and mathematics. Students in grades 7-12 also received instruction in the basic skills, as well as counseling and support services.

MIGRANT PROGRAM

The Migrant program provided supplemental reading, mathematics, and communication skills instruction for the children of Migrant workers. A total of 449 students K-12 participated in the program.

The Bilingual programs served students whose primary language was other than English, or who came from a home environment where a language other than English was regularly used. The Migrant Education program served students

whose families follow the crops or fishing industry for a livelihood, and as a result the students experienced educational discontinuity. Although the program philosophies differ, the student populations overlap because, in most circumstances, a student in the Migrant program comes from an environment where English was not the primary language spoken in the home. In view of this fact, these two programs cooperate as one, the staff serving the students were the same, and all materials and activities were shared by the programs. (See Appendix B for a complete description of the students eligibility criteria.)

Both process and product evaluations were undertaken for the State Bilingual and Migrant Programs. This year's process evaluation was accomplished by three separate activities: 1) structured interviews of advisors at their support service sites; 2) structured interviews of teachers at their instructional sites; and 3) classroom observations by an evaluator. The observations and interviews were planned for the weeks of November 28 and December 5, 1988. All seven certified instructional program staff were interviewed and observed. All three program advisors were interviewed. The results of these process questionnaires were presented in a separate report published and disseminated earlier in the year.

The product evaluation, which is the focus of this report, addresses the results of student test performance. The California Achievement Tests (CAT) Form E normed the Spring of 1985 served as the evaluation instruments for grades 1-12. This was the tenth year that norm referenced tests approved by the Michigan Department of Education were used for program evaluation. The locally adopted performance standard used to evaluate program success was that: mean post-test percentile scores will evidence improvement over pre-test percentile scores. Attainment of this standard means that student rates

of learning have exceeded their normal learning rate. The reader should bear in mind that most of these students have not learned at normal rates in the past.

Students in grades 2-12 were pre- and post-tested with the CAT on a spring to spring basis to determine their achievement in reading and mathematics. First grade pupils this year were pre- and post-tested with CAT on a fall to spring basis in reading and mathematics. All testing was performed on-level, that is, students took a test at a level of difficulty appropriate for their grade.

PRODUCT EVALUATION RESULTS

Results in reading and mathematics achievement will be presented for each program. Grade level results by subject area for each program will be presented and discussed. Where relatively few students were tested at any grade level and for a building, the results should be viewed with caution.

STATE BILINGUAL

Reading

Table 1 below contains the grade level results for the State Bilingual program in reading.

TABLE 1. ATTAINMENT OF THE PERFORMANCE STANDARD* IN READING IN TERMS OF PERCENTILE SCORES FOR STATE BILINGUAL PROGRAM PARTICIPANTS TESTED SPRING TO SPRING, GRADES 1-12, 1988-89.**

Grade	Number of Students Pre- and Post-Tested	Percentile			Performance Standard* Attained
		Pre Mean	Post Mean	Mean Gain/ Loss	
1	143	44	36	- 8	No
2	90	32	32	0	No
3	28	24	26	2	Yes
4	17	21	33	12	Yes
5	29	24	24	0	No
6	31	27	27	0	No
7	26	27	22	- 5	No
8	40	20	20	0	No
9	28	13	22	9	Yes
10	15	21	16	- 5	No
11	8	27	38	11	Yes
12	—	—	--	--	—

*Post-test percentile score will evidence improvement over pre-test percentile score.

**Grade 1 results are Fall to Spring rather than Spring to Spring results. The pre-test was administered October-November, 1988 to first grade students.

Students in grades 3, 4, 9 and 11 demonstrated positive percentile gains between two to 12 percentile units. Students in grades 1, 2, 5, 7, 8 and 10 did not attain the standard. Thus four of the 11 (36.4%) grades attained the performance standard.

It is interesting to note that at all grades except twelfth (where there were 33 participants as of the February, 1989 tracking) a majority of their participants were pre- and post-tested. No twelfth grade State Bilingual students appear to be post-tested in either reading or mathematics.

Mathematics

Grade level results are presented in Table 2 below.

TABLE 2. ATTAINMENT OF THE PERFORMANCE STANDARD* IN MATHEMATICS IN TERMS OF PERCENTILE SCORES FOR STATE BILINGUAL PROGRAM PARTICIPANTS TESTED SPRING TO SPRING, GRADES 2-12, 1988-89.**

Grade	Number of Students Pre- and Post-Tested	Percentile			Performance Standard* Attained
		Pre Mean	Post Mean	Mean Gain/ Loss	
1	143	44	61	17	Yes
2	90	61	47	-14	No
3	28	40	46	6	Yes
4	18	35	42	7	Yes
5	29	38	41	3	Yes
6	31	41	49	8	Yes
7	26	45	40	- 5	No
8	40	30	26	- 4	No
9	28	27	36	9	Yes
10	15	34	32	- 2	No
11	8	42	39	- 3	No
12	--	--	--	--	--

*Post-test percentile score will evidence improvement over pre-test percentile score.

**Grade 1 results are Fall to Spring rather than Spring to Spring results. The pre-test was administered October-November, 1988 to first grade students.

Students tested met the performance standard at all grades except grades 2, 7, 8, 10, and 11. First grade students demonstrated the greatest positive percentile gain of 17 percentile units while fifth graders had the smallest positive gain of three percentile points. Overall six of the 11 (54.5%) grades attained the performance standard.

MIGRANT

Reading

Grade level results are presented in Table 3 below.

TABLE 3. ATTAINMENT OF THE PERFORMANCE STANDARD* IN READING IN TERMS OF PERCENTILE SCORES FOR MIGRANT PROGRAM PARTICIPANTS TESTED SPRING TO SPRING, GRADES 1-12, 1988-89.**

Grade	Number of Students Pre- and Post-Tested	Percentile			Performance Standard* Attained
		Pre Mean	Post Mean	Mean Gain/ Loss	
1	43	45	37	- 8	No
2	43	43	29	14	Yes
3	41	38	50	12	Yes
4	39	36	36	0	No
5	31	35	19	-16	No
6	23	34	36	2	Yes
7	26	36	31	- 5	No
8	30	22	26	4	Yes
9	18	28	42	14	Yes
10	11	28	69	41	Yes
11	--	--	--	--	--
12	--	--	--	--	--

*Post-test percentile score will evidence improvement over pre-test percentile score.

**Grade 1 results are Fall to Spring rather than Spring to Spring results. The pre-test was administered October-November, 1988 to first grade students.

Students tested obtained the performance standard at grades 2, 3, 6, 8, 9, and 10. Grades 1, 4, 5 and 7 failed to meet the standard. Thus six of the ten (60.0%) grades attained the performance standard.

It is again interesting to note that at all grades except twelfth (where there were 13 Migrant students as of the February, 1989 tracking) a majority of the participants were pre- and post-tested. No twelfth grade Migrant students appear to be post-tested in either reading or mathematics.

Mathematics

Grade level results are presented in Table 4 below.

TABLE 4. ATTAINMENT OF THE PERFORMANCE STANDARD* IN MATHEMATICS IN TERMS OF PERCENTILE SCORES FOR MIGRANT PROGRAM PARTICIPANTS TESTED SPRING TO SPRING, GRADES 2-12, 1988-89.**

Grade	Number of Students Pre- and Post-Tested	Percentile			Performance Standard* Attained
		Pre Mean	Post Mean	Mean Gain/ Loss	
1	43	50	71	21	Yes
2	43	69	49	-20	No
3	41	59	67	8	Yes
4	39	56	43	-13	No
5	31	45	51	6	Yes
6	23	61	55	- 6	No
7	27	29	42	13	Yes
8	30	39	36	- 3	No
9	18	37	51	14	Yes
10	11	38	27	-11	No
11	--	--	--	--	--
12	--	--	--	--	--

*Post-test percentile score will evidence improvement over pre-test percentile score.

**Grade 1 results are Fall to Spring rather than Spring to Spring results. The pre-test was administered October-November, 1988 to first grade students.

Students tested obtained the performance standard at grades 1, 3, 5, 7 and 9. Overall five of the ten grades (50.0%) attained the performance standard.

STATE BILINGUAL AND MIGRANT PROGRAMS

Table 5 below presents in summary form the attainment of the performance standard by program, subject, and grade. As these data indicate, the State Bilingual students attained the performance standard in grades 3, 4 and 9 in both subjects; 11 in reading; and 1, 5 and 6 in mathematics. The Migrant program attained the performance standard in grades 3 and 9 in both subjects; 2, 6, 8 and 10 in reading; and 1, 5 and 7 in mathematics. Overall the State Bilingual program seemed more effective in mathematics with 54.5% (6 of 11) grades attaining the standard than in reading with 36.4% (4 of 11). The Migrant program showed higher performance in reading with 60.0% (6 of 10) grade attainments and approximately equal performance in mathematics of 50.0% (5 of 10) grades attaining the standard.

TABLE 5. ATTAINMENT STATUS* FOR READING AND MATHEMATICS BY PROGRAM BY GRADE, 1988-89.

GRADE LEVEL	STATE BILINGUAL		MIGRANT	
	Reading	Mathematics	Reading	Mathematics
1	No	Yes	No	Yes
2	No	No	Yes	No
3	Yes	Yes	Yes	Yes
4	Yes	Yes	No	No
5	No	Yes	No	Yes
6	No	Yes	Yes	No
7	No	No	No	Yes
8	No	No	Yes	No
9	Yes	Yes	Yes	Yes
10	No	No	Yes	No
11	Yes	No	--	--
12	--	--	--	--
Total**				
Yes	4 (36.4%)	6 (54.5%)	6 (60.0%)	5 (50.0%)
No	7 (63.6%)	5 (45.5%)	4 (40.0%)	5 (50.0%)

*A "yes" attainment status means the average post-test percentile score was greater than the average pre-test percentile score.
**Total frequency distribution of attainment of performance by program and grade.

The achievement results, which have been presented, were also tabulated by building. These data are presented in Appendix C.

SUMMARY

The 1988-89 school year was the tenth year that students in the State Bilingual and Migrant programs were assessed in reading and mathematics, using a norm referenced test. This is the third year that the new California Achievement Test (CAT) Form E normed in the Spring of 1985 has been used for program evaluation purposes.

The locally adopted performance standard was that grade level post-test mean percentile scores would evidence improvement over pre-test scores.

The State Bilingual results show a decrease from the previous year in the percent of grade levels meeting the performance standard in reading and an increase in mathematics. For the State Bilingual program the 13.6% point decrease in reading was from 50.0% meeting the standard last year (6 of 12 observations) to 36.4% meeting the same standard this year (4 of 11 observations). The increase of 9.1% points in mathematics was from 45.4% (5 of 11 observations) to 54.5% (6 of 11 observations).

The Migrant results on the other hand, show increases from the previous year in the percent of grade level meeting the performance standard in both reading and mathematics. The 23.6% point increase in reading came about from 4 of 11 observations (36.4%) meeting the standard last year to 6 of 10 observations (60.0%) meeting the same standard this year. The 10.0% point increase in mathematics was from 40.0% (4 of 10 observations) meeting the standard last year to 50.0% (5 of 10 observations) meeting the same standard this year.

Overall at some grade levels for both programs only a few students were pre- and post-tested, thus, the scores are perhaps not stable due to the small number of students tested at particular grade levels.

The recommendations that follow are based upon process and product evaluation results.

RECOMMENDATIONS

Based on this year's process and product evaluation results, the following recommendations are offered in an effort to improve the State Bilingual/Migrant programs in the future.

- Explore the reasons why the majority of the secondary State Bilingual students (grades 7-12) failed to demonstrate achievement gains. This may include designing a new needs assessment and/or incorporating different instructional strategies aimed at increasing reading and mathematics academic skills.

- Explore other alternatives to lower the student to staff ratios and to make those ratios more consistent across buildings. Present funding levels make it impossible to lower the ratio further without assistance from other sources.

- Institute a periodic testing of identified objectives for all grade levels. These objectives would provide a basis for all State Bilingual/Migrant teachers to chart the progress of each student and utimately determine instructional effectiveness. This type of testing program appears to be effective with Chapter 1/Article 3 pupils and ties into building established objective timelines.

- Continue to define at the elementary and secondary levels, a standard set of reading and math materials. After the set of core materials has been identified, purchase adequate amounts for each State Bilingual/Migrant building.

- Record building level instructional activities that happen monthly. These activities then should be communicated through a calendar of events from each teacher to the supervisor.

- Assess the instructional time students are receiving by subject area versus the results obtained (see Appendix C for results). Staff may find more time needs to be allocated to instruction in reading.

- Review other selection instruments for students who lack California Achievement Test (CAT) results or those potentially eligible students who do not do poorly on CAT. A pilot testing of the new selection instrument(s) should be undertaken to determine its technical adequacy.

- Work with the Instructional Staff Development Center (ISDC) staff to design an appropriate set of inservice activities to address the following: anticipatory set, teaching/reteaching, and closure strategies in the conte t State Bilingual/Migrant instructional settings.

- Continue to plan and define at the secondary level a consistent advisor program where like services are provided at all secondary buildings to eligible students.

- Develop a technique or set of procedures to ensure the provision of regular communication of both instructional and advisor staff with classroom and compensatory education teaching staff.

- Increased monitoring of a number of program functions by the program supervisor seems needed. These functions include:

  - Record keeping at both instructional and support service sites,
  - Curriculum materials,
  - Classroom instructional practices,
  - Pupil absenteeism, and
  - Caseloads of staff.

- Reconsider post-testing twelfth graders such that the effectiveness of both programs can be gauged. This may just entail better monitoring of testing practices at the high school level.

APPENDICES

APPENDIX A

1988-89 COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: State Bilingual, Total Participants

Building	K	1	2	3	4	5	6	Total
E. Baillie	0	0	0	0	0	0	0	0
Coulter	4	5	3	0	0	0	0	12
Emerson	8	12	3	2	1	0	1	27
Fuerbringer	6	12	7	3	0	0	2	30
N. Haley	10	12	5	1	1	2	1	32
Handley	0	0	0	0	0	0	0	0
Heavenrich	3	6	3	0	0	1	0	13
Herig	11	7	7	2	2	0	1	30
Houghton	7	7	4	0	0	1	0	19
Jerome	11	18	14	1	1	6	3	54
Jones	4	2	1	1	0	0	2	10
Kempton	4	2	3	2	0	0	0	11
Longfellow	19	16	9	4	1	0	1	50
Longstreet	6	3	1	1	0	1	1	13
J. Loomis	13	7	4	3	2	1	1	31
Merrill Park	13	6	6	2	0	2	1	30
C. Miller	5	7	5	1	0	1	2	21
J. Moore	12	9	5	3	1	5	6	41
Morley	2	1	1	1	1	0	0	6
J. Rouse	17	23	13	2	5	5	4	69
Salina	8	6	8	0	1	1	1	25
Stone	15	20	4	0	0	0	1	40
Webber Ele.	32	25	10	2	3	5	7	84
Zilwaukee	0	0	0	0	0	0	0	0
TOTAL	210	206	116	31	19	31	35	648

*Count as of February 28, 1989 tracking of students.

APPENDIX A

1988-89 COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: Migrant, Total Participants

Building	K	1	2	3	4	5	6	Total
E. Baillie	1	1	0	0	1	0	0	3
Coulter	4	2	2	1	1	1	0	11
Emerson	2	6	2	4	1	0	3	18
Fuerbringer	0	1	0	1	0	0	0	2
N. Haley	3	9	5	3	4	3	1	28
Handley	0	0	0	0	1	0	1	2
Heavenrich	0	2	1	0	0	1	1	5
Herig	1	1	0	2	2	2	1	9
Houghton	5	3	2	1	1	2	3	17
Jerome	0	4	0	2	2	2	0	10
Jones	1	1	1	2	1	1	0	7
Kempton	1	0	0	1	1	0	0	3
Longfellow	3	5	4	3	4	3	2	24
Longstreet	2	0	0	0	0	0	0	2
J. Loomis	5	1	3	7	5	0	2	23
Merrill Park	2	1	2	1	1	1	1	9
C. Miller	0	2	0	1	1	1	2	7
J. Moore	1	1	1	1	1	2	2	9
Morley	0	1	0	0	1	0	0	2
J. Rouse	4	7	10	6	5	10	3	45
Salina	2	2	5	3	1	1	1	15
Stone	2	6	4	2	4	5	1	24
Webber Ele.	11	7	10	5	5	4	3	45
Zilwaukee	0	0	0	0	0	0	0	0
TOTAL	50	63	52	46	43	39	27	320

*Count as of February 28, 1989 tracking of students.

APPENDIX A

1988-89 COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: State Bilingual, Total Participants

Building	7	8	9	Total
Central Junior	1	7	3	11
Arthur Eddy Jr.	0	1	0	1
North Intermediate	8	8	21	37
South Intermediate	10	9	4	23
Webber Junior	12	26	12	50
TOTAL	31	51	40	122

*Count as of February 28, 1989 tracking of students.

1988-89 COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: State Bilingual Total Participants

Building	10	11	12	Total
Arthur Hill	27	7	32	66
Saginaw High	15	6	1	22
TOTAL	42	13	33	88

*Count as of February 28, 1989 tracking of students.

APPENDIX A

1988-89 COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: **Migrant, Total Participants**

Building	7	8	9	Total
Central Junior	3	5	4	12
Arthur Eddy Jr.	1	1	1	3
North Intermediate	8	15	1	24
South Intermediate	13	13	10	36
Webber Junior	11	19	14	44
TOTAL	36	53	30	119

*Count as of February 28, 1989 tracking of students.

1988-89 COUNT OF PROGRAM PARTICIPANTS*

PROGRAM: **Migrant, Total Participants**

Building	10	11	12	Total
Arthur Hill	14	8	12	34
Saginaw High	7	4	1	12
TOTAL	21	12	13	46

*Count as of February 28, 1989 tracking of students.

APPENDIX B

IDENTIFICATION AND ELIGIBILITY PROCEDURES FOR STATE BILINGUAL AND MIGRANT STUDENTS

State Bilingual

The first step in the procedures is that of a student identification. Potential students are identified by means of a Home Language Survey. The survey is designed to determine if: 1) the native or first language is other than English or; 2) a language other than English is regularly used in the student's home or environment. Students in grades K-2 eligible for the program on the basis of the Home Language Survey and parental permission. Students in grades 3-12 go through a more extensive eligibility system which is described below.

In addition to the Home Language Survey, students in grades 3-12 are also tested on one or two instruments for program eligibility. For students who are new or have never been in the Bilingual program, the first is a test of oral English proficiency. In Saginaw, the Language Assessment Battery (LAB) test is used for this purpose and is usually administered in the fall of each year. If the student scores at or below the 40th percentile, then the student is eligible. However, if the student scores above the 40th percentile, then the student is given an English reading achievement test. The California Achievement Test (CAT) is used for this purpose. If the student scores at or below the 40th percentile, then the student is eligible for the program. Finally, parental permission is needed for program participation.

APPENDIX B

Students in grades 3-12 who were in the Bilingual program the previous year go through a somewhat different eligibility procedure. These students are subject to a program exit criterion which is based on the student's post-test English reading achievement score. If the student's post-test score remains at or below the 40th percentile, the student is ineligible. However, eligibility is based on either the oral English language proficiency test score or the English reading achievement test score. In addition, a score that is used for eligibility is to be the result of a test administration no earlier than the spring of the preceding school year. It is, therefore, possible for a student to exceed the 40th percentile on the reading achievement test and become eligible when retested with the oral English proficiency test. The final eligibility requirement is that students:

> ... shall be enrolled in the Bilingual instruction program for three years or until the child achieves a level of proficiency in English language skills sufficient to receive an equal educational opportunity in the regular school program, whichever comes first.[1]

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[1] Administrator's Manual for Bilingual Education Programs in Michigan 1979-80 Bilingual Education Office, Michigan Department of Education, February, 1979, Appendix A, page 4.

APPENDIX B

Migrant

Eligibility for the Migrant program is based solely on whether a student is one of three Migrant designations. The district does, however, attempt to serve those students with the greatest academic need, and nearly all Migrant students scored at or below the 40th percentile on an English reading achievement test.

The three designations of Migrant students are:

1) Interstate: Student has moved within the last year across state boundaries.

2) Intrastate: Student has moved within the last year across school district boundaries within the state.

3) Five Year Settled Out: Student has remained within a school district for at least five years.

APPENDIX B

PROCEDURES FOR THE IDENTIFICATION OF STUDENTS ELIGIBLE FOR BILINGUAL EDUCATION FUNDING SUMMARY FLOW CHART

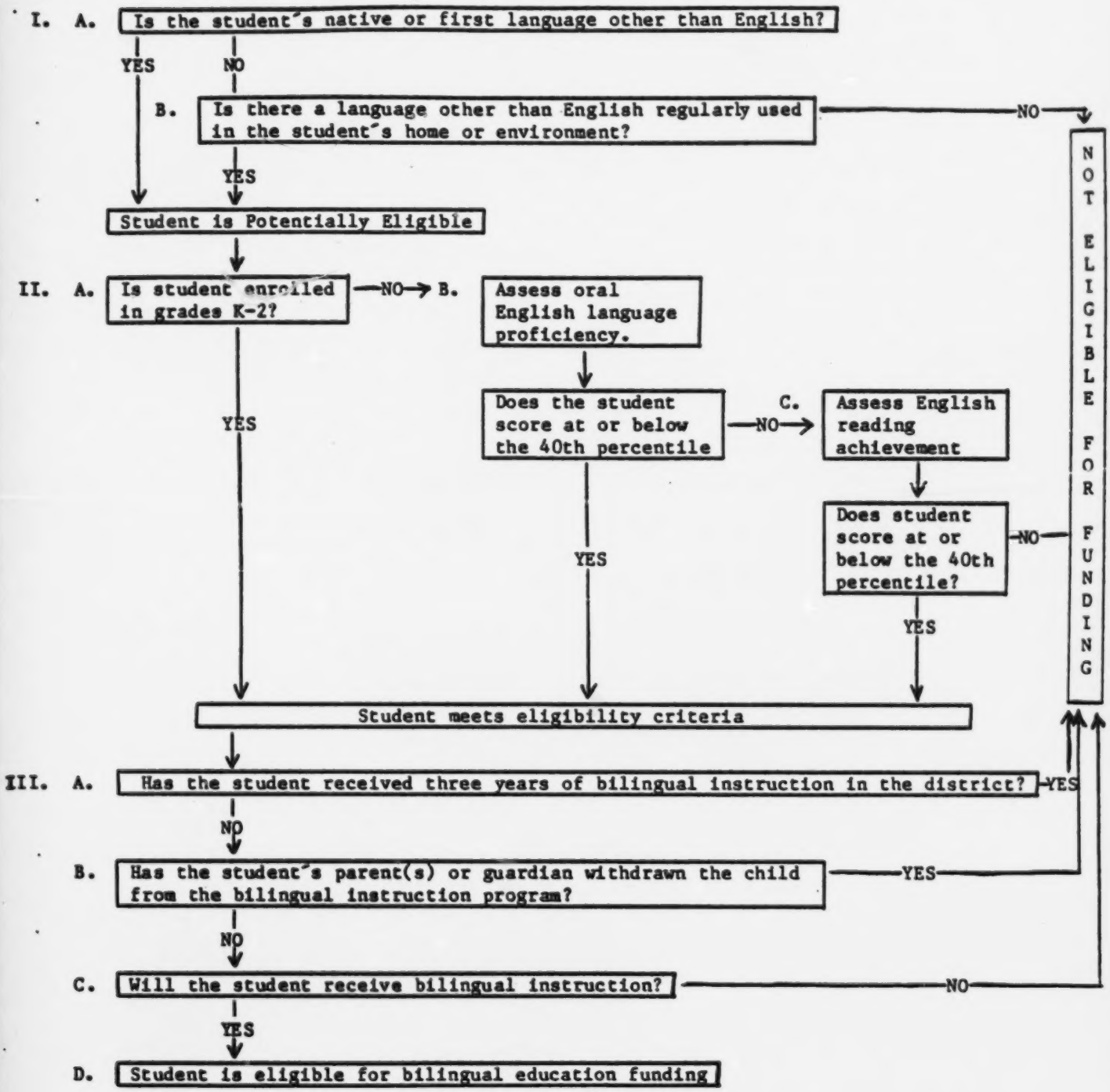
I. A. Is the student's native or first language other than English?
YES
NO
B. Is there a language other than English regularly used in the student's home or environment?
NO
YES
Student is Potentially Eligible
II. A. Is student enrolled in grades K-2?
NO
B. Assess oral English language proficiency.
YES
Does the student score at or below the 40th percentile
C. NO
Assess English reading achievement
Does student score at or below the 40th percentile?
NO
YES
YES
NOT ELIGIBLE FOR FUNDING
Student meets eligibility criteria
III. A. Has the student received three years of bilingual instruction in the district?
YES
NO
B. Has the student's parent(s) or guardian withdrawn the child from the bilingual instruction program?
YES
NO
C. Will the student receive bilingual instruction?
NO
YES
D. Student is eligible for bilingual education funding

TABLE C.1. MEAN PERCENTILE GAIN/LOSS IN READING BY BUILDING AND GRADE FOR 1-6 STATE BILINGUAL, BASED ON PRE- TO POST-TESTING ON CAT, 1988-89 (SPRING TO SPRING)*.

Building	GRADE 1				GRADE 2				GRADE 3				GRADE 4				GRADE 5				GRADE 6			
	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean
	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss
E. Baillio	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
Coulter	5	1	12	11	2	39	28	-11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Emerson	10	14	16	2	2	14	28	14	2	14	56	42	1	7	18	11	0	--	--	--	1	21	13	- 8
Fuerbringer	11	44	52	8	5	58	54	- 4	3	24	37	13	0	--	--	--	0	--	--	--	1	37	28	- 9
Nelle Haley	11	59	52	- 7	4	54	28	-26	1	32	32	0	1	28	21	- 7	2	14	24	10	1	32	27	- 5
Handley	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
Heavenrich	--	--	--	--	3	63	28	-35	0	--	--	--	0	--	--	--	1	23	48	25	0	--	--	--
Herig	7	63	61	- 2	5	67	54	-13	2	35	39	4	2	24	27	3	--	--	--	--	1	39	21	-18
Houghton	5	56	44	-12	2	56	56	0	0	--	--	--	0	--	--	--	1	27	25	- 2	0	--	--	--
Jerome	9	28	13	-15	13	25	48	23	1	33	65	32	1	3	12	9	6	30	24	- 6	3	20	21	1
Jones	1	54	39	-15	1	75	37	-38	1	10	12	2	0	--	--	--	0	--	--	--	1	16	9	- 7
Kempton	2	89	87	- 2	3	14	20	6	2	8	32	24	0	--	--	--	0	--	--	--	0	--	--	--
Longfellow	12	25	13	-12	7	50	17	-33	4	32	40	8	1	35	48	13	--	--	--	--	1	22	16	- 6
Longstreet	3	63	44	-19	1	72	86	14	--	--	--	--	0	--	--	--	1	37	46	9	1	27	56	29
J. Loomis	3	29	10	-19	2	35	32	- 3	2	16	17	1	2	30	42	12	1	21	16	- 5	--	--	--	--
Merrill Park	6	35	29	- 6	5	25	28	3	2	21	20	- 1	0	--	--	--	2	35	50	15	1	50	48	- 2
C. Miller	6	63	59	- 4	5	50	58	8	1	43	15	-28	0	--	--	--	1	15	28	13	2	25	25	0
J. Moore	8	44	39	- 5	4	44	16	-28	3	28	63	35	1	0	44	44	3	16	25	9	6	28	32	4
Morley	1	43	3	-40	1	54	37	-17	1	21	50	29	1	16	40	24	0	--	--	--	0	--	--	--
J. Rouse	11	52	39	-13	6	50	35	-15	2	37	44	7	4	28	40	12	5	22	16	- 6	3	33	37	4
Salina	5	29	22	- 7	7	52	14	-38	0	--	--	--	1	21	33	12	1	23	20	- 3	1	25	28	3
Stone	12	37	27	-10	4	56	42	-14	0	--	--	--	0	--	--	--	0	--	--	--	1	24	18	- 6
Webber Ele.	15	8	22	14	8	22	33	11	1	27	5	-22	3	27	32	5	5	28	21	- 7	7	24	27	3
Zilwaukee	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
TOTAL	143	44	36	- 8	90	32	32	0	28	24	26	2	17	21	33	12	29	24	24	0	31	27	27	0

*Grade 1 results are Fall to Spring rather than Spring to Spring results. The pre-test was administered October-November, 1988 to first grade students.

APPENDIX C

TABLE C.2. MEAN PERCENTILE GAIN/LOSS IN READING BY BUILDING AND GRADE FOR 7-12 STATE BILINGUAL, BASED ON PRE- TO POST-TESTING ON CAT, 1988-89 (SPRING TO SPRING).

Building	GRADE 7				GRADE 8				GRADE 9				GRADE 10				GRADE 11				GRADE 12			
	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean
	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss
Arthur Eddy Jr.	0	--	--	--	1	9	15	6	0	--	--	--												
Central Jr.	1	41	16	-25	6	17	20	3	1	14	24	10												
North Int.	5	21	25	4	4	22	16	- 6	17	17	24	7												
South Int.	10	27	22	- 5	9	17	25	8	4	5	21	16												
Webber Jr.	10	30	21	- 9	20	21	20	- 1	6	12	20	8												
Arthur Hill													9	22	15	- 7	5	27	27	0	0	--	--	--
Saginaw High													6	17	18	- 1	3	35	56	21	0	--	--	--
TOTAL	26	27	22	- 5	40	20	20	0	28	13	22	9	15	21	16	- 5	8	27	38	11	0	--	--	--

TABLE C.3. MEAN PERCENTILE GAIN/LOSS IN MATHEMATICS BY BUILDING AND GRADE FOR 1-6 STATE BILINGUAL, BASED ON PRE- TO POST-TESTING ON CAT, 1988-89 (SPRING TO SPRING)*.

Building	GRADE 1				GRADE 2				GRADE 3				GRADE 4				GRADE 5				GRADE 6			
		Percentile		Mean		Percentile		Mean		Percentile		Mean		Percentile		Mean		Percentile		Mean		Percentile		Mean
	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss
E. Baillie	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
Coulter	5	2	52	50	2	89	65	-24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Emerson	10	30	41	11	2	11	48	37	2	14	30	16	1	8	24	16	0	--	--	--	1	20	8	-12
Feurbringer	11	52	58	6	5	75	56	-19	3	39	61	22	0	--	--	--	0	--	--	--	1	15	17	2
Belle Haley	11	54	78	24	4	41	27	-14	1	35	58	23	1	80	94	14	2	18	17	- 1	1	65	80	15
Handley	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
Heavenrich	7	84	87	3	3	58	23	-35	0	--	--	--	0	--	--	--	1	4	50	46	--	--	--	--
Herig	--	--	--	--	5	94	59	-35	2	37	32	- 5	2	33	37	4	--	--	--	--	1	83	99	16
Houghton	5	95	94	1	2	87	56	-31	0	--	--	--	0	--	--	--	1	28	50	22	0	--	--	--
Jerome	9	52	50	- 2	13	40	75	35	1	75	78	3	1	8	11	3	6	76	58	-18	3	27	37	10
Jones	1	39	30	- 9	1	73	25	-48	1	8	25	17	0	--	--	--	0	--	--	--	1	14	18	4
Kempton	2	66	92	26	3	18	9	- 9	2	32	68	36	0	--	--	--	0	--	--	--	0	--	--	--
Longfellow	12	48	54	6	7	59	46	-13	4	44	32	-12	1	12	35	23	--	--	--	--	1	54	27	-27
Longstreet	3	15	48	33	1	95	65	-30	--	--	--	--	0	--	--	--	1	78	59	-19	1	63	94	31
J. Loomis	3	15	13	- 2	2	42	48	6	2	20	10	10	2	35	70	35	1	63	17	-46	--	--	--	--
Merrill Park	6	35	70	35	5	70	50	-20	2	25	56	31	0	--	--	--	2	54	44	-10	1	46	59	13
C. Miller	6	54	75	21	5	59	54	- 5	1	42	28	-14	0	--	--	--	1	44	56	12	2	63	88	25
J. Moore	8	39	63	24	4	65	42	-23	3	48	75	27	1	93	23	-70	3	39	56	17	6	48	61	13
Morley	1	4	54	50	1	86	32	-54	1	80	61	-19	1	82	76	- 6	--	--	--	--	--	--	--	--
J. Rouse	11	61	61	0	6	58	28	30	2	61	84	23	4	21	37	16	5	30	32	2	3	46	37	- 9
Salina	5	41	25	-16	7	67	17	-50	0	--	--	--	1	17	40	23	1	52	96	-44	1	72	72	0
Stone	12	44	67	23	4	78	27	-51	0	--	--	--	0	--	--	--	0	--	--	--	1	44	79	35
Webber Ele.	15	10	64	54	8	60	65	5	1	73	16	-57	3	61	50	-11	5	18	20	2	7	30	32	2
Zilwaukee	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
TOTAL	143	44	61	17	90	61	47	-14	28	40	46	6	18	35	42	7	29	38	41	3	31	41	49	8

*Grade 1 results are Fall to Spring rather than Spring to Spring results. The pre-test was administered October-November, 1988 to first grade students.

TABLE C.4. MEAN PERCENTILE GAIN/LOSS IN MATHEMATICS BY BUILDING AND GRADE FOR 7-12 STATE BILINGUAL, BASED ON PRE- TO POST-TESTING ON CAT, 1988-89 (SPRING TO SPRING).

Building	GRADE 7				GRADE 8				GRADE 9				GRADE 10				GRADE 11				GRADE 12			
	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean
	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss
Arthur Eddy Jr.	0	--	--	--	1	54	70	16	0	--	--	--												
Central Jr.	1	35	32	- 3	6	32	33	1	1	24	12	12												
North Int.	5	44	25	-19	4	35	32	- 3	17	33	44	11												
South Int.	10	37	24	-13	9	33	27	- 6	4	18	30	12												
Webber Jr.	10	52	41	-11	20	27	20	- 7	6	16	28	12												
Arthur Hill													9	42	39	- 3	5	42	39	- 3	0	--	--	--
Saginaw High													6	22	25	3	3	41	37	- 4	0	--	--	--
TOTAL	26	45	40	- 5	40	30	26	- 4	28	27	36	9	15	34	32	- 2	8	42	39	- 3	0	--	--	--

TABLE C.5. MEAN PERCENTILE GAIN/LOSS IN READING BY BUILDING AND GRADE FOR 1-6 MIGRANT, BASED ON PRE- TO POST-TESTING ON CAT, 1988-89 (SPRING TO SPRING)*.

Building	GRADE 1 Number Tested	GRADE 1 Percentile Pre Mean	GRADE 1 Percentile Post Mean	GRADE 1 Mean Gain/ Loss	GRADE 2 Number Tested	GRADE 2 Percentile Pre Mean	GRADE 2 Percentile Post Mean	GRADE 2 Mean Gain/ Loss	GRADE 3 Number Tested	GRADE 3 Percentile Pre Mean	GRADE 3 Percentile Post Mean	GRADE 3 Mean Gain/ Loss	GRADE 4 Number Tested	GRADE 4 Percentile Pre Mean	GRADE 4 Percentile Post Mean	GRADE 4 Mean Gain/ Loss	GRADE 5 Number Tested	GRADE 5 Percentile Pre Mean	GRADE 5 Percentile Post Mean	GRADE 5 Mean Gain/ Loss	GRADE 6 Number Tested	GRADE 6 Percentile Pre Mean	GRADE 6 Percentile Post Mean	GRADE 6 Mean Gain/ Loss
E. Baillie	1	15	33	18	0	--	--	--	0	--	--	--	1	10	11	1	0	--	--	--	0	--	--	--
Coulter	2	1	23	-22	2	39	28	-11	1	25	35	10	1	83	43	-40	--	--	--	--	0	--	--	--
Emerson	4	34	45	11	1	21	10	-11	4	35	72	37	1	7	18	11	0	--	--	--	3	20	20	0
Fuerbringer	1	53	48	- 5	0	--	--	--	1	37	41	4	0	--	--	--	0	--	--	--	0	--	--	--
Nelle Haley	7	53	53	0	4	44	22	-22	3	52	68	16	4	41	33	- 8	3	41	50	9	1	25	32	7
Handley	0	--	--	--	0	--	--	--	0	--	--	--	1	68	86	18	0	--	--	--	1	79	86	7
Heavenrich	0	--	--	--	1	80	92	12	0	--	--	--	0	--	--	--	1	22	32	10	1	21	21	0
Herig	1	75	71	- 4	0	--	--	--	2	48	76	28	2	32	25	- 7	1	32	41	9	1	61	60	- 1
Houghton	3	56	47	- 9	2	48	28	-20	1	76	86	10	1	54	37	-17	2	20	20	0	3	50	42	-12
Jerome	1	34	20	-14	0	--	--	--	1	72	12	-60	2	25	27	2	1	41	30	- 9	0	--	--	--
Jones	1	34	24	10	1	75	37	-38	2	10	37	27	1	20	32	12	1	41	30	- 9	0	--	--	--
Kempton	0	--	--	--	0	--	--	--	1	18	33	15	--	--	--	--	0	--	--	--	0	--	--	--
Longfellow	4	52	30	-22	4	54	27	-27	2	46	6	-40	4	33	35	2	1	65	61	- 4	2	33	28	- 5
Longstreet	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
J. Loomis	--	--	--	--	2	13	27	14	6	20	22	2	4	21	35	14	0	--	--	--	1	68	72	- 4
Merrill Park	1	5	39	34	2	24	27	3	1	41	37	- 4	1	63	65	2	1	54	52	- 2	1	59	59	0
C. Miller	2	56	62	6	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
J. Moore	--	--	--	--	--	--	--	--	1	54	50	- 4	1	41	13	-28	2	17	37	20	2	8	22	14
Morley	1	46	10	36	0	--	--	--	0	--	--	--	1	35	7	-28	0	--	--	--	0	--	--	--
J. Rouse	2	49	50	1	6	46	27	-19	5	52	61	9	4	30	39	9	9	33	25	- 8	2	32	28	- 4
Salina	2	43	38	- 5	5	50	17	-33	3	25	37	12	1	16	35	19	--	--	--	--	1	25	28	3
Stone	5	44	51	7	4	54	25	-29	2	83	78	- 5	4	41	48	7	5	48	37	-11	1	80	67	-13
Webber Ele.	5	48	30	-18	9	28	44	16	5	56	61	5	5	59	56	- 3	4	27	25	- 2	3	32	35	3
Zilwaukee	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TOTAL	43	45	37	- 8	43	43	29	14	41	38	50	12	39	36	36	0	31	35	19	-16	23	34	36	2

*Grade 1 results are Fall to Spring rather than Spring to Spring results. The pre-test was administered October-November, 1988 to first grade students.

TABLE C.6. MEAN PERCENTILE GAIN/LOSS IN READING BY BUILDING AND GRADE FOR 7-12 MIGRANT, BASED ON PRE- TO POST-TESTING ON CAT, 1988-89 (SPRING TO SPRING).

Building	GRADE 7				GRADE 8				GRADE 9				GRADE 10				GRADE 11				GRADE 12			
	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean
	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss
Arthur Eddy Jr.	1	16	4	12	1	9	15	6	1	1	0	- 1												
Central Jr.	1	0	22	22	4	20	41	21	2	48	79	31												
North Int.	--	--	--	--	5	37	39	2	1	41	48	7												
South Int.	12	32	28	- 4	7	22	25	3	8	21	44	23												
Webber Jr.	8	39	28	-11	13	20	21	1	7	30	39	9												
Arthur Hill													7	28	41	13	0	--	--	--	0	--	--	--
Saginaw High													4	28	58	30	0	--	--	--	0	--	--	--
TOTAL	26	36	31	- 5	30	22	26	4	18	28	42	14	11	28	69	41	0	--	--	--	0	--	--	--

TABLE C.7. MEAN PERCENTILE GAIN/LOSS IN MATHEMATICS BY BUILDING AND GRADE FOR 1-6 MIGRANT, BASED ON PRE- TO POST-TESTING ON CAT, 1988-89 (SPRING TO SPRING)*.

Building	GRADE 1				GRADE 2				GRADE 3				GRADE 4				GRADE 5				GRADE 6			
	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean	Percentile			Mean
	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss	Number Tested	Pre Mean	Post Mean	Gain/ Loss
E. Baillie	1	36	2	-34	0	--	--	--	0	--	--	--	1	6	42	36	0	--	--	--	0	--	--	--
Coulter	2	8	63	55	2	89	65	-24	1	70	80	10	1	58	56	- 2	--	--	--	--	0	--	--	--
Emerson	4	39	46	7	1	14	13	- 1	4	44	65	21	1	8	24	16	0	--	--	--	3	21	30	9
Fuerbringer	1	34	39	5	0	--	--	--	1	75	83	8	0	--	--	--	0	--	--	--	0	--	--	--
Belle Haley	7	50	73	23	4	52	33	-19	3	66	72	6	4	61	65	4	3	42	56	14	1	68	46	-22
Handley	0	--	--	--	0	--	--	--	0	--	--	--	1	80	75	5	0	--	--	--	1	92	92	0
Heavenrich	0	--	--	--	1	99	78	-21	0	--	--	--	0	--	--	--	1	76	50	-26	1	67	48	-19
Herig	1	85	99	14	0	--	--	--	2	41	80	39	2	44	30	-14	1	39	65	26	1	86	97	11
Houghton	3	91	84	- 7	2	85	67	-18	1	78	99	21	1	35	54	19	2	20	39	19	3	73	79	6
Jerome	1	55	54	- 1	0	--	--	--	1	87	39	-48	2	37	33	- 4	1	41	50	9	0	--	--	--
Jones	1	10	22	12	1	73	25	-48	2	41	48	7	1	72	41	-31	1	39	30	- 9	0	--	--	--
Kempton	0	--	--	--	0	--	--	--	1	21	86	65	--	--	--	--	0	--	--	--	0	--	--	--
Longfellow	4	58	63	5	4	91	83	- 8	2	78	28	-50	4	75	30	-45	1	72	65	- 7	2	76	56	-20
Longstreet	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--	0	--	--	--
J. Loomis	--	--	--	--	2	25	33	8	6	44	17	-27	4	41	67	26	0	--	--	--	1	92	67	-25
Merrill Park	1	42	64	22	2	68	52	-16	1	46	61	15	1	86	50	-36	1	41	79	38	1	68	54	-14
C. Miller	2	79	83	4	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
J. Moore	--	--	--	--	--	--	--	--	1	35	80	45	1	78	10	-68	2	73	96	23	2	27	41	14
Morley	1	14	52	38	0	--	--	--	0	--	--	--	1	56	16	-40	0	--	--	--	0	--	--	--
J. Rouse	2	64	60	- 4	6	76	41	-35	5	52	83	31	4	30	42	12	9	39	37	- 2	2	50	48	- 2
Salina	2	37	47	10	5	65	21	-44	3	61	72	11	1	56	37	-19	0	--	--	--	1	72	72	0
Stone	5	50	64	14	4	72	28	-44	2	89	68	-21	4	56	46	-10	5	79	75	- 4	1	96	88	- 8
Webber Ele.	5	52	71	19	9	59	68	9	5	68	86	18	5	86	59	-27	4	22	24	2	3	50	32	-18
Zilwaukee	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TOTAL	43	80	71	21	43	69	49	-20	41	59	67	8	39	56	43	-13	31	45	51	6	23	61	55	- 6

*Grade 1 results are Fall to Spring rather than Spring to Spring results. The pre-test was administered October-November, 1988 to first grade students.

APPENDIX C

TABLE C.8. MEAN PERCENTILE GAIN/LOSS IN MATHEMATICS BY BUILDING AND GRADE FOR 7-12 MIGRANT, BASED ON PRE- TO POST-TESTING ON CAT, 1988-89 (SPRING TO SPRING).

Building	GRADE 7 Percentile				GRADE 8 Percentile				GRADE 9 Percentile				GRADE 10 Percentile				GRADE 11 Percentile				GRADE 12 Percentile			
	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss	Number Tested	Pre Mean	Post Mean	Mean Gain/ Loss
Arthur Eddy Jr.	1	59	24	-35	1	54	70	24	1	2	0	- 2												
Central Jr.	1	0	61	61	4	41	44	3	2	79	89	10												
North Int.	--	--	--	--	5	61	65	4	1	44	56	12												
South Int.	12	39	34	- 5	7	41	30	-11	8	35	54	19												
Webber Jr.	8	63	35	-28	13	28	25	- 3	7	30	32	2												
Arthur Hill													7	50	28	-22	0	--	--	--	0	--	--	--
Saginaw High													4	21	36	15	0	--	--	--	0	--	--	--
TOTAL	27	29	42	13	30	39	36	- 3	18	37	51	14	11	38	27	-11	0	--	--	--	0	--	--	--